A 300. kg satellite is in geosynchronous orbit (period is 8.64 x 104 s) around the earth.

1. What is the radius of the satellite’s orbit from the centre of the earth?
2. What is the distance from the satellite to the surface of the earth?
3. What is the satellite’s speed in orbit?
4. What is the total energy of the satellite when it is in orbit?
5. What is the binding energy?
6. How much work must the launch rocket have done on the satellite to place the satellite in orbit? (ignore the rotation of the earth).